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EXAMINER	
PATEL, HEMANT SHANTILAL	

ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/623,613	KIM, YONG-HYUN	
	Examiner	Art Unit	
	Hemant Patel	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-10 and 12-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-10 and 12-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The Applicant response dated July 19, 2006 to an Office Action dated April 4, 2006 is entered. Claims 1-2, 4-10, 12-19 are pending in this application.

Response to Amendment

2. Applicant's arguments with respect to claims 1-2, 4-10, 12-19 have been considered but are moot in view of the new ground(s) of rejection. The further art search has resulted in new rejections. Hence, this Office Action is made Non-Final.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-2, 4, 6-7, 9-10, 12-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rogers (US Patent No. 5,946,386), and further in view of Lu (US Patent No. 6,721,397 B1).

Regarding claim 1, Rogers teaches of a short message service switching private branch exchange system (Fig. 1, item 101, col. 7, ll. 59-60; col. 8, ll. 6-10; PBX as integrated switch within the call management computer 101 can directly connect to extension lines), comprising:

an office line interface unit that interfaces with office lines (Fig. 2, item 203);

a voice mail interface unit including digital signal processor and a memory (Fig. 2, item 208; col. 14, ll. 25-32; col. 19, ll. 42-44), the voicemail interface unit converting a pulse code modulation format short message service signal transmitted from the office line interface unit into short message service data (col. 19, ll. 39-40; col. 23, ll. 56-57, 60-61, 66-67, decoding caller ID formatted data from analog DID or T-1 office lines and using a state machine for each task col. 19, ll. 20-67; under the control of call management computer col. 18, ll. 35-36), and converting the short message service data into a format of a terminal that will receive the short message service data (col. 17, ll. 39-64; real-time conversion of incoming signals and data format to destination specific signals and data; and col. 17, ll. 57-60, this destination is a terminal, thus conversion will be according to format of a terminal that will receive data; col. 22, ll. 55-56, determining called terminal);

a control unit that switches a pulse code modulation channel of an office line to which a speech path is coupled into a pulse code modulation channel of a digital signal processor (Fig. 2, items 201, 203, 204, 210, 208; col. 21, ll. 58-col. 22, ll. 4, control unit 201 connecting incoming CO trunk interface 203 to assigned DSP 208 through circuit switch 204 and telephony bus 210), and determines a type of the terminal that will receive the short message service data (col. 22, ll. 55-56, determine the called party; which will be called party extension type when call management computer directly connects to extensions col. 8, ll. 6-10, ll. 20-22); and

an extension line interface unit (Fig. 2, item 206; col. 8, ll. 6-10, ll. 18-22, call management computer directly connecting to extensions instead of external PBX

trunks) that transmits an short message service signal having the format corresponding to the terminal determined by the control unit (col. 17, ll. 39-64, real-time protocol and signal conversion; col. 19, ll. 40, generating caller ID formatted data for analog extension; col. 26, ll. 65-col. 27, ll. 5, call data sent over digital line to called party)

wherein the digital signal processor (Fig. 2, item 208) converts the pulse code modulation format short message service signal transmitted from the office line interface unit into the short message service data by decoding (col. 19, ll. 39; col. 23, ll. 56-57, 60-61, 66-67, decoding caller ID formatted data from T-1 office lines carrying PCM data; col. 21 for T-1 trunks), converting the short message service data into a second pulse code modulation format short message service signal when the short message service data is transmitted to a single line terminal (col. 17, ll. 39-64, real-time protocol and signal conversion; col. 19, ll. 40, generating caller ID formatted data for analog extension), and outputs the short message service data as is when the short message service data is transmitted to a digital terminal (col. 26, ll. 65-col. 27, ll. 5); and a memory that stores the short message service data (Fig. 4, item 410; col. 19, ll. 5-19; col. 20, ll. 47-50).

Roger teaches of converting different types of incoming signals and data to internal data format and then converting them to the format of the receiving terminal. But Roger does not mention them (i.e. caller ID signals and data) to be short message service signal or data.

However, in the same field of endeavor, Lu teaches of a switching system (Fig. 2, item 204) that receives short message service (SMS) messages (col. 6, ll. 36-38) from

the party to a call (col. 5, ll. 20-29) and provides it to the other party to the call (col. 6, ll. 52-67) using the signaling format of caller ID data signals but without actual caller ID data.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Roger's versatile PBX system to use caller ID signaling and data format to convey short message service messages as taught by Lu in order to provide conventional telephones with a capability to send random and arbitrary message describing an emergency situation (Lu, col. 2, ll. 40-43) and this can be accomplished using only "a conventional Caller ID processor" (col. 2, ll. 54).

Regarding claim 2, Rogers teaches of the system, wherein the office line interface unit comprises at least ***one of***:

an analog office line interface unit that couples an analog office line and converts an analog format of an short message service signal transmitted through the analog office line into a pulse code modulation format (Fig. 2, items 203, 204, 210; col. 17, ll. 39-64; col. 21, ll. 47-col. 22, ll. 4, incoming CO trunk interface 203 converting analog format on analog DID trunk to internal standardized format of MVIP); and

an integrated services digital network office line interface unit that couples an integrated services digital network office line and receives a short message service signal of a pulse code modulation format through the integrated services digital network office line (Fig. 2, items 203, 204, 210; col. 17, ll. 3-10, each office line connected with its own appropriate type of interface; col. 17, ll. 39-64; col. 21, ll. 22, ISDN PRI) and

receives short message service signal (D channel data messages; B channel transporting voice/ data over 64 kb/s PCM as known in the art).

Regarding claim 4, Rogers teaches of the system, wherein the extension line interface unit (Fig. 2, item 206) comprises at least ***one of***:

an single line terminal extension line interface unit (col. 8, ll. 6-10, ll. 20-22, system connecting to telephone instruments and appearing as PBX) that couples to an single line terminal (col. 21, ll. 24-31, loopstart, groundstart for Plain Old Telephone Service (POTS) telephones) and converts the pulse code modulation format short message service signal into an analog format short message service signal by using a coder/decoder (col. 17, ll. 3-9, each appropriate interface unit 206 converting MVIP format to single line analog format); and

a digital terminal extension line interface unit that couples to a digital terminal (col. 21, ll. 46, call management computer connecting to PBX with ISDN digital line as ISDN PRI would be ISDN BRI when call management computer directly connects to telephone instruments and it appears as PBX to the telephones col. 8, ll. 6-10, ll. 20-22; also Fig. 2, item 213, Voice over Internet Protocol (VoIP) connection).

Regarding claim 6, Rogers teaches of the system, wherein the office line interface unit comprises:

an analog office line interface unit that couples an analog office line and converts an analog format of an short message service signal transmitted through the analog office line into a pulse code modulation format (Fig. 2, items 203, 204, 210; col. 17, ll. 39-64; col. 21, ll. 47-col. 22, ll. 4, incoming CO trunk interface 203 converting analog

format on analog DID trunk to internal standardized format of MVIP; col. 10, ll. 11-13, incoming path connection DSP); and

an integrated services digital network office line interface unit that couples an integrated services digital network office line and receives a short message service signal of a pulse code modulation format through the integrated services digital network office line (Fig. 2, items 203, 204, 210; col. 17, ll. 3-10, each office line connected with its own appropriate type of interface; col. 17, ll. 39-64; col. 21, ll. 22, ISDN PRI) and receives short message service signal (D channel messages or data message over B channel), wherein the voice mail interface unit comprises;

a digital signal processor (Fig. 2, item 208) that converts the pulse code modulation format short message service signal transmitted from the office line interface unit into the short message service data by decoding (col. 19, ll. 39; col. 23, ll. 56-57, 60-61, 66-67, decoding caller ID formatted data from T-1 office lines carrying PCM data; col. 21 for T-1 trunks), converting the short message service data into a second pulse code modulation format short message service signal when the short message service data is transmitted to a single line terminal (col. 17, ll. 39-64, real-time protocol and signal conversion; col. 19, ll. 40, generating caller ID formatted data for analog extension; col. 18, ll. 43-49, all this is performed through DSP), and outputting the short message service data as is when the short message service data is transmitted to a digital terminal (col. 26, ll. 65-col. 27, ll. 5), and

a memory that stores the short message service data (Fig. 4, item 410; col. 19, ll. 5-19; col. 20, ll. 47-50), and wherein the extension line interface unit (Fig. 2, item 206) comprises,

an single line terminal extension line interface unit (col. 8, ll. 6-10, ll. 20-22, system connecting to telephone instruments and appearing as PBX) that couples to the single line terminal (col. 21, ll. 24-31, loopstart, groundstart for POTS telephones) and converts the pulse code modulation format short message service signal into an analog format short message service signal by using a coder/decoder (col. 17, ll. 3-9, each appropriate interface unit 206 converting MVIP format to single line analog format), and

a digital terminal extension line interface unit that couples to the digital terminal (col. 21, ll. 46, call management computer connecting to PBX with ISDN digital line as ISDN PRI would be ISDN BRI when call management computer directly connects to telephone instruments and it appears as PBX to the telephones col. 8, ll. 6-10, ll. 20-22; also Fig. 2, item 213, Voice over Internet Protocol (VoIP) connection).

Regarding claim 7, Rogers teaches of a method for operating a private branch exchange system (Fig. 2, item 201), comprising:

determining whether a digital signal processor can be detected when an office line and a speech path are connected to each other (col. 9, ll. 55-62);

transmitting an short message service signal transmitted from the office line to the digital signal processor when the digital signal processor is detected (Fig. 2, item 219, col. 9, ll. 54-62, speech and control link established for transmission of data from office line 203 to DSP 208);

determining an extension line terminal that will receive the short message service signal (col. 22, ll. 55-56, determine the called party and call type); and

transmitting the short message service signal to the determined extension line terminal from the usable digital signal processor (col. 26, ll. 65-col. 27, ll. 5, notification of call including caller data),

wherein the digital signal processor converts the received short message service signal into short message service data (col. 19, ll. 39; col. 23, ll. 56-57, 60-61, 66-67, decoding caller ID formatted data from T-1 office lines carrying PCM data or decoding data from analog DID), and generates an short message service message corresponding to the extension line terminal according to a main processor (col. 17, ll. 39-64; real-time conversion of incoming signals and data format to destination specific signals and data; and col. 8, ll. 6-10, ll. 20-22, this destination is a terminal, thus conversion will be according to format of a terminal that will receive data; col. 22, ll. 55-56, the determination is based on call management computer determined called party; also col. 26, ll. 65-col. 27, ll. 5).

Roger does not mention caller ID signals and data to be short message service signal or data.

However, in the same field of endeavor, Lu teaches of a switching system (Fig. 2, item 204) that receives short message service (SMS) messages (col. 6, ll. 36-38) from the party to a call (col. 5, ll. 20-29) and provides it to the other party to the call (col. 6, ll. 52-67) using the signaling format of caller ID data signals but without actual caller ID data.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Roger's versatile system to use caller ID signaling and data format to convey short message service messages as taught by Lu in order to provide conventional telephones with a capability to send random and arbitrary message describing an emergency situation (Lu, col. 2, ll. 40-43) and this can be accomplished using only "a conventional Caller ID processor" (col. 2, ll. 54).

Regarding claim 9, Rogers teaches of a method, wherein when the office line is a public switched telephone network office line (Fig. 2, item 202), a switched telephone network office line interface unit (Fig. 2, item 203) converts a frequency shift keying format short message service signal to a pulse code modulation format short message service signal (col. 17, ll. 39-64; conversion to internal format of MVIP col. 21, ll. 47-57) and transmits the pulse code modulation format short message service signal to the digital signal processor (Fig. 2, items 203, 208, 204, 210; col. 21, ll. 58-col. 22, ll. 4; transmitting from CO interface 203 through circuit switch 204 and telephony signal bus 210 to DSP 208).

Regarding claim 10, Rogers teaches of a method, wherein when the office line is an integrated services digital network office line (col. 21, ll. 22, ISDN PRI), a integrated services digital network office line interface unit transmits a pulse code modulation format short message service signal to the digital signal processor (col. 17, ll. 3-9, each CO trunk including ISDN is attached through its appropriate type of interface; col. 17, ll. 39-64; trunk interface converts to internal format of MVIP col. 21, ll. 47-57; Fig. 2, items 203, 208, 204, 210; col. 21, ll. 58-col. 22, ll. 4; transmitting from CO

interface 203 through circuit switch 204 and telephony signal bus 210 to DSP 208; Fig. 3, item 313; col. 20, ll. 39, voice path to DSP).

Regarding claim 12, Rogers teaches of a method, wherein the usable digital signal processor generates a pulse code modulation format short message service signal if the extension line terminal is a single line terminal (col. 17, ll. 39-64, real-time protocol and signal conversion; col. 19, ll. 40, generating caller ID formatted data for analog extension; col. 22, ll. 55-56, and this is based on call management computer determined called party), and generates the short message service data if the extension line terminal is a digital terminal (col. 26, ll. 65-col. 27, ll. 5, transmitting data message directly).

Regarding claim 13, Rogers teaches of a method, wherein the pulse code modulation format short message service signal is converted into an frequency shift keying format short message service signal by a coder/decoder and the frequency shift keying format short message service signal is transmitted to the single line terminal (col. 17, ll. 3-9, each line connects with its appropriate interface, ll. 39-64, converting from internal format of MVIP to format determined by called party col. 22, ll. 55-56; col. 8, ll. 6-10, ll. 20-22, telephones connected to call management computer).

Regarding claim 14, Rogers teaches of a method for switching short message service of a private branch exchange system, comprising:

switching a pulse code modulation channel of an office line interface unit to a pulse code modulation channel of a digital signal processor if a speech path is connected to the office line interface unit (col. 9, ll. 42-47; col. 21, ll. 58-col. 2, ll. 4;

connecting DSP to trunk interface through circuit switch and telephony signal bus as needed; col. 10, ll. 1-13, incoming path connection to DSP; col. 20, ll. 39);

transmitting an short message service signal to the digital signal processor from the office line interface unit through the pulse code modulation channel (Fig. 2, items 202, 203, 204, 210, 208, any data on incoming trunk 202 path transmitted to DSP 208 through trunk interface 203 and circuit switch 204);

decoding the short message service signal transmitted to the digital signal processor (col. 19, ll. 39, caller ID data signal decoding);

switching the pulse code modulation channel of the digital signal processor to a pulse code modulation channel of an single line terminal extension line interface unit if an extension line terminal that will receive the short message service signal is an single line terminal (Fig. 2, items 208, 204, 210, 206; col. 8, ll. 6-10, ll. 20-22, connecting to telephones; col. 22, ll. 55-56, called party determination by call management computer); and

switching an short message service data channel of the digital signal processor to an short message service data channel of a digital terminal extension line interface unit if the extension line terminal that will receive the short message service signal is a digital terminal (col. 26, ll. 65-col. 27. ll. 5).

Roger does not mention caller ID signals and data to be short message service signal or data.

However, in the same field of endeavor, Lu teaches of a switching system (Fig. 2, item 204) that receives short message service (SMS) messages (col. 6, ll. 36-38) from

the party to a call (col. 5, ll. 20-29) and provides it to the other party to the call (col. 6, ll. 52-67) using the signaling format of caller ID data signals but without actual caller ID data.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Roger's versatile system to use caller ID signaling and data format to convey short message service messages as taught by Lu in order to provide conventional telephones with a capability to send random and arbitrary message describing an emergency situation (Lu, col. 2, ll. 40-43) and this can be accomplished using only "a conventional Caller ID processor" (col. 2, ll. 54).

Regarding claim 15, refer to rejection for claim 14 and claim 9.

Regarding claim 16, Rogers teaches of telephones (extension lines) attaching to management computer with their appropriate interface type cards (col. 17, 3-9, interface types; col. 8, ll. 6-10, ll. 20-22 connecting telephones). Lu also teaches of sending messages according to caller ID data signaling as per industry standard TR-NWT-000031 that uses signal transmission performed according to accompanying industry standard TR-NWT-000030 (col. 2, ll. 19-25). The extension interface cards are known in the art to generate frequency shift keying signals for transmission to destination single line POTS telephone terminal. This is part of Custom Local Area Signaling System (CLASS) features.

Regarding claim 17, Rogers teaches of a private branch exchange system, comprising:

a single digital signal processor that receives a short message service signal in a first format and converts the short message service signal into a second format short message service signal (col. 17, ll. 39-64, DSP converts received data from internal format of MVIP to format of receiving terminal i.e. digital terminal col. 26, ll. 65-col. 27, ll. 5); and

a controller (Fig. 2, item 201) that controls the digital signal processor (col. 9, ll. 54-62; col. 18, ll. 35-36; assigns DSP as needed thus it controls them) and determines the second format (col. 22, ll. 55-56; determines called party and thus required format),

wherein the digital signal processor converts the first format short message service signal into the second format short message service signal by converting the first format short message service signal into short message service data (decoding caller ID data from incoming MVIP format signal) and converting the short message service data to the second format short message service signal (converting decoded caller ID data from incoming side interface 203 to FSK caller ID data for output to outgoing line interface 206), the converting the first format short message service signal into the short message service data comprising decoding (col. 19, ll. 39, caller ID decoding), converting the short message service data into the second format short message service signal when the short message service data is transmitted to a single line terminal (col. 17, ll. 39-64, real-time protocol and signal conversion; col. 19, ll. 40, generating caller ID formatted data for analog extension according to called party determination col. 22, ll. 55-56; col. 8, ll. 6-10, ll. 20-22, called party being telephone attached to call management computer, and col. 18, ll. 43-49, all this is done through

DSP), and outputting the short message service data as is when the short message service data is transmitted to a digital terminal (col. 26, ll. 65-col. 27, ll. 5).

Regarding claim 18, Rogers teaches universal conversion from any trunk/interface to any other trunk/interface (col. 17, ll. 39-60).

Regarding claim 19, Rogers teaches of DSP with a voice mail interface (col. 19, ll. 42-43).

5. Claims 5, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rogers and Lu as applied to claims 1, 7 above, and further in view of Rand (US Patent No. 5,838,766).

Regarding claims 5, 8, Rogers teaches of DSP being assigned as the incoming call (speech path) is detected (col. 9, ll. 54-62; col. 18, ll. 35-36). Thus DSP is a shared resource used for different number of incoming lines (CO trunks) and telephone lines (extension lines, col. 8, ll. 6-10, ll. 20-22).

Rogers and Lu do not specifically teach of waiting for a shared resource to become available.

However, in the same field of endeavor, Rand teaches of waiting for a shared resource to become available (col. 2, ll. 67-col. 3, ll. 1).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Rogers and Lu to include waiting for a shared resource as taught by Rand in order to efficiently provide the shared resources (Rand, col. 1, ll. 56).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hemant Patel whose telephone number is 571-272-8620. The examiner can normally be reached on 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on 571-272-7547. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Hemant Patel
Examiner
Art Unit 2614

WING CHAN
SUPERVISORY PATENT EXAMINER

HSP